R E P O R T R E S U M E S

ED 020 011 PS 000 937

BLOCKBUILDING.

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NATIONAL EDUCATION ASSN., WASHINGTON, D.C.

PUB DATE 60

EDRS PRICE MF-$0.25 HC NOT AVAILABLE FROM EDRS. 31P.

DESCRIPTORS- *MANIPULATIVE MATERIALS, *KINDERGARTEN, *PRIMARY GRADES, *LEARNING ACTIVITIES, EDUCATIONAL EQUIPMENT, INDIVIDUAL ACTIVITIES, GROUP ACTIVITIES, CONSTRUCTION (PROCESS),

ALTHOUGH BLOCKS ARE THE MOST IMPORTANT TYPE OF EQUIPMENT IN A SCHOOLROOM FOR YOUNG CHILDREN, INADEQUATE EMPHASIS HAS BEEN PLACED ON THE EDUCATIVE VALUES THEY PROVIDE. THEY ARE ADAPTABLE MATERIALS WHICH PROVIDE OPPORTUNITIES FOR GROWTH ACCORDING TO INDIVIDUAL RATES OF DEVELOPMENT. THEIR USE ENCOURAGES THE DEVELOPMENT OF COOPERATION, RESPONSIBILITY IN AND TO THE GROUP, DESIRABLE SOCIAL ATTITUDES, AND EFFECTIVE WORK HABITS. BLOCKBUILDING STIMULATES ACCURATE OBSERVATION AND FUNCTIONS AS AN AID IN THE TEACHING OF ARITHMETIC, GEOGRAPHY, AND SCIENCE. THROUGH BUILDING WITH BLOCKS CONCEPTS ARE CLARIFIED, PHYSICAL SKILLS ARE DEVELOPED, AND CREATIVITY IS STIMULATED. THE TEACHER PLAYS A KEY ROLE IN REALIZING THE POTENTIAL EDUCATIONAL BENEFITS OF BLOCKBUILDING. SHE MUST (1) PROVIDE MATERIALS, ADEQUATE FLOOR SPACE, TIME FOR BUILDING, AND HER OWN SYMPATHETIC, ALERT INTEREST, (2) DIRECT THE CHILDREN TO COOPERATIVE AND CONSTRUCTIVE ACTIVITY, (3) ENCOURAGE THE DEVELOPMENT OF SAFETY AND PERFORMANCE STANDARDS, (4) PROVIDE OPPORTUNITIES FOR CONCEPT DEVELOPMENT, AND (5) OFFER APPRECIATIVE RECOGNITION OF GOOD EFFORTS AND WORK WELL DONE. BLOCKS ARE AVAILABLE IN A VARIETY OF SIZES, SHAPES, AND MATERIALS. SMOOTH WOODEN BLOCKS ARE OF MAXIMUM VALUE AND WILL, IF CAREFULLY LACQUERED AND PROPERLY STORED ON SHELVING CONSTRUCTED FOR THAT PURPOSE, ENDURE FROM 10 TO 20 YEARS OF CONSTANT USE. THIS DOCUMENT IS AVAILABLE FOR $0.75 FROM NEA, 1201 SIXTEENTH STREET, N.W., WASHINGTON, D.C. 20036. (JS)

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Library of Congress Catalog Number: 60—16862

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FOREWORD

Blocks have been one of the essential pieces of equipment in kindergartens and primary grades for many years, although sometimes teachers forget the varied learning opportunities which blocks can offer. This bulletin should be most helpful to teachers concerned with young children. It describes effectively the way in which blockbuilding implements the growth in understandings of children and the many teaching situations presented through their use. The situations are developed in a refreshing manner, and each description is typical of the age range involved. Learnings in habits, attitudes, and interests, as well as subject areas, such as arithmetic, geography, and science, are discussed.

Esther B. Starks has a creative way of presenting the material, and her deep understanding of children is evident throughout. Our thanks go to her and to the publications staff of NEA for this attractive and useful bulletin. We trust that it will be widely used and will answer the needs of many teachers.

LULU PALMER

ACKNOWLEDGMENTS:

Ohio University Research Committee—
for their generous aid

Jessie Stanton—whose work and influence sparked the author's initial interest in blocks

BLOCKBUILDING

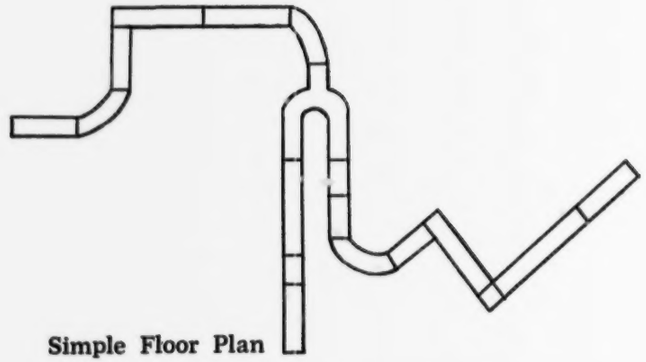
Blocks are undoubtedly the most important type of equipment in a schoolroom for young children. Their value extends from the mere toddler, hardly able to pile one block on top of another, to children in the primary grades, who are able to carry out extensive projects over long periods of time. In spite of this, all too little emphasis has been placed on the many educative values they provide. Too often teachers who are not acquainted with the opportunities offered by blocks furnish little or no space for these materials or, equally unfortunate, fail to plan adequate time in the day's program for their use. Too often administrators frown at the initial cost of blocks, ignoring the fact that they are *permanent* equipment (good for 10 to 20 years of constant use if given care). Instead, they spend enormous amounts of money for expendable items with far less challenge and intrinsic value.

What are some of the values of blocks?

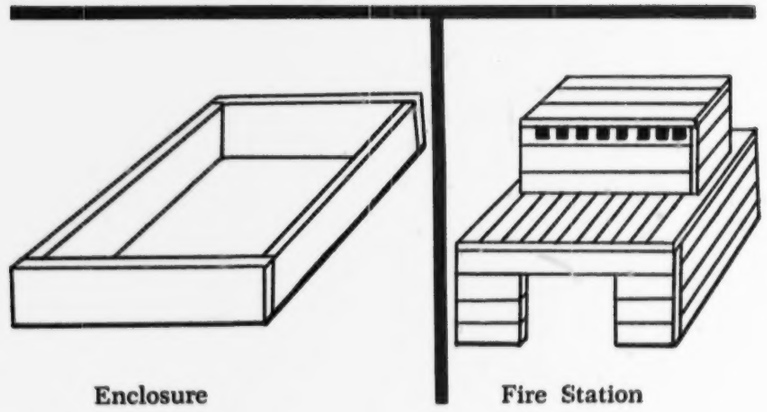
What learnings and development can be encouraged through their use?

What skill is required of the teacher to guide children in the use of these materials?

What kinds of blocks are available?



Simple Floor Plan



Enclosure

Fire Station

What special requirements are there for proper maintenance and constructive use of blocks?

What quantities should be provided for a given group?

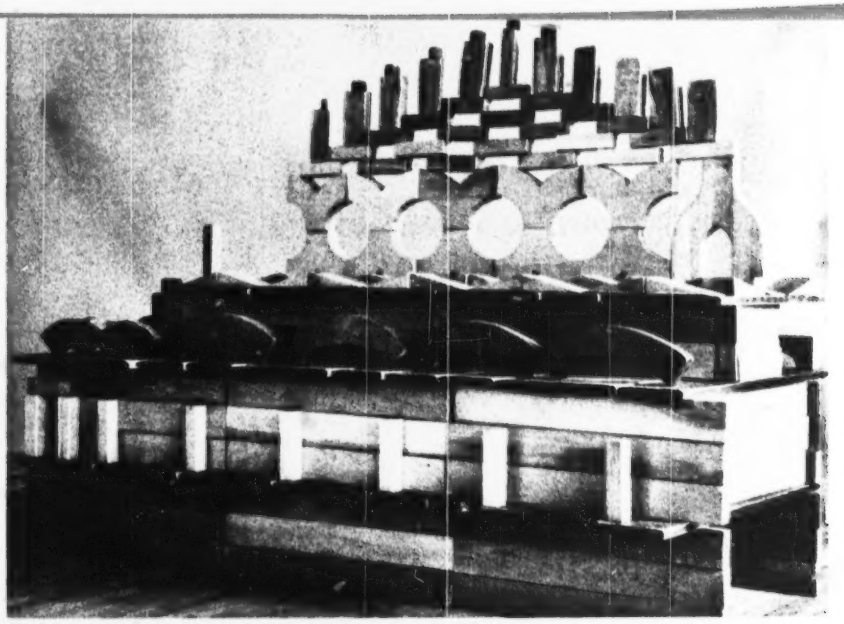
Let us answer these questions in order.

Blocks Are Adaptable Materials

Blocks can be used in countless ways, according to the plan of the builder. They provide many opportunities for growth and development on the part of the user and are, therefore, valuable over a period of years. The immature or less mature child experiments by piling two or three blocks in a tower, stringing a row of blocks, or making simple outline enclosures.

The more experienced and mature child builds complicated structures, several stories high, complete with floors, steps, windows, doors, towers, decorative trim, and many other items as he elaborates on and continues his building from one day to the next.

Also, being adaptable, blocks lend themselves to varied types of construction—roads, bridges, garages, skyscrapers, farm buildings, city stores, railroads—providing a wide range of vicarious experiences, countless spurs to learning new facts, and furnishing excellent settings for dramatic play.



Elaborate Construction

Blocks are materials which can be used by an individual child or by several children working together. Thus, there are numerous opportunities for growth according to the child's own rate of development.

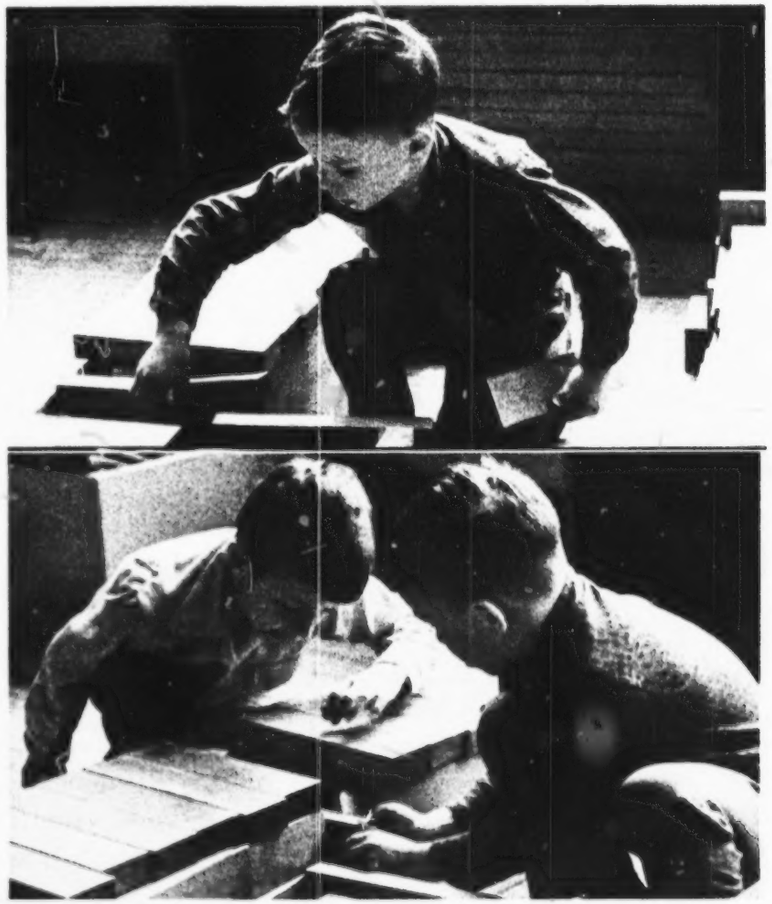
The Free Use of Blocks Encourages Social Development

At least two factors are involved in this statement—the development of cooperative activity and the development of desirable social habits.

Cooperative work and cooperative play are the products of a series of experiences and are developmental

traits which usually appear at about the age of six. They are preceded by several stages. The very young child is content with *solitary play*. He does not yet know how to mingle with others, nor does he want or need to do so. All contacts are usually made for him by his elders. However, when he becomes actively aware of other children (possibly about the age of two-and-one-half or three years), he engages in so-called *parallel play*. In this phase he plays with his toys near another child who is also playing with his own toys. Seldom do the two come into contact. When they do, we have *associative play*. This is not always cooperative (often it involves taking toys away from another child), but there is "contact" between the children, and it is another important step towards the truly *cooperative play* which comes later. It is at this later stage that children really work together—sharing ideas, toys, and labor.

In any group of kindergarten children, especially where we find many who have had no play (or very little) with their peers, we are likely to find all four types of play. Because blocks are so adaptable and permit many types of experiences, they are ideal materials for kindergarten. Children at any of these four stages of development can find pleasure, satisfaction, and challenge by using them.



Only gradually do children become aware of those nearby. The garage that Tommy is building is progressing extremely well, and Dick (who is less sure of himself) builds one, too. This parallel construction gives Dick confidence, and before long associative play begins as the boys converse about their trucks or decide to run their cars along the same highway at the same time. Then, gradually, this association becomes cooperative for a short time. The two garages, so close together, are joined and the driveways are connected into one wide road. To be sure, this cooperative play will involve disagreements and, at first, may last only for brief periods with lapses into parallel play for each child or associative play with other children. But—blocks make this possible!

The many experiences which the children have in all of these types of play can come *as each child is ready*, and through these frequent experiences each child can profit *at his own rate of maturity*. It follows, therefore, that by using such materials freely, children grow in security and assurance as well as in the basic skill of constructing steady buildings. The teacher's interest, questions, and comments encourage each child to progress to the next step.

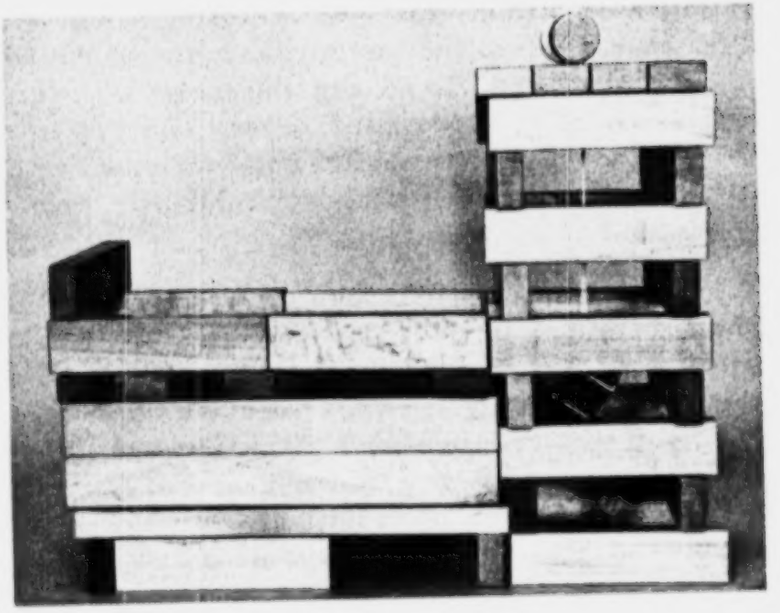
Cooperative Building

Later in the kindergarten year, cooperative building becomes the usual type of activity. First, small groups of two, three, or four children join forces to plan, construct, and play together. At the start the membership in these groups changes frequently; one child leaves, another comes, the first returns, two leave to

paint, one new member appears, etc. By spring, however, there is a longer attention span, a developing skill with and interest in peer relationships, and a greater ability to plan and stay with a plan of work. All these factors are instrumental in encouraging longer and larger projects, involving four to ten or more children. Many times those who are not actively engaged in constructing the project and using it in dramatic play contribute ideas or participate in some fringe activity (painting "water" for the "river," making "tickets" for the "train," or learning useful habits of temporary spectatorship).

Carol, a rather mature five year old who rarely used blocks, began working one day on a tall building. The center part of one end was hollow; the other end had four floor levels. Soon she asked for string and proceeded to cut several long pieces which she tied to a block. This she dropped into the open well of the building. By that time Jake and several other children had gathered around to see what she was doing. "It's an elevator," Carol announced happily. "See, the people are going up to the roof restaurant for lunch." She had trouble pulling the block up and down, however, and many suggestions were contributed by the interested spectators. With frank admiration, Toby (who was usually the instigator of elaborate ideas) announced, "I'll help you, Carol. I'll help you work it so the people won't fall off."

Interest in the elevator and its workings and use led to a trip for part of the group to one of the older buildings in town where the cables and elevator could be watched through an open grille. Comments heard during the trip were put to use upon returning to the school:



"It's a big iron cage with a building around it."

"Big steel cables pull it up. There's a wheel—a pulley—that winds the cables and lifts the elevator."

"You tell the man (operator) what floor you want and he stops the elevator at that floor. He makes the pulley stop winding the cable and that stops it."

"An elevator is a cage you ride up in. An escalator is a stair steps that move."

As a result of the trip, a small box was used as the elevator. Strings at each end led to the roof where they were wound around a cylinder and could be rolled up or down as desired. Carol, her idea, and her construction became the center of a group varying in size from four to twelve during a period of at least two weeks. During the remainder of the year others experimented with the idea with varying degrees of success.

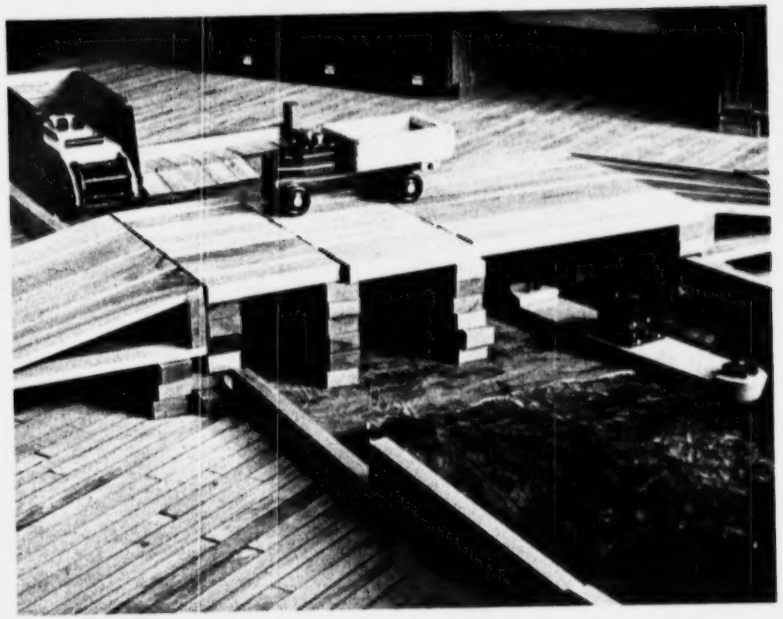
In another kindergarten group, Tom and Bobby built a big bridge. They announced it was "the bridge to Parkersburg over the Ohio River." Since the trip to Parkersburg was a familiar one to many of the children whose parents went there to shop, the boys attempted to make the well-known curve on the bridge, but after one-half hour of unsuccessful effort gave it up and compromised on a curved approach to the bridge. They measured the boat heights to make sure the bridge was high enough for boats to pass beneath.

"Now for the flood walls," said Tom, and he proceeded to make a wall of blocks along each "bank."

By this time other children were showing interest.

"This side's country," announced Jane. "I'll make a farm here."

"And that side's Parkersburg," Phil and Sue chorused. "We'll make the city buildings."



Sally began working quietly in the river, putting a row of ramps from one side to the other between the flood walls. This was a waterfall. "The Ohio River has lots of waterfalls. I've seen them," she announced.

"Yes," said Gary, "but we have to have locks then so the boats can get past. It's sort of a canal by the waterfall."

Jim contributed, "I know what it is. I've seen boats in the locks. It's like a box the boat goes in and they shut the door. Then the boat goes out the other end."

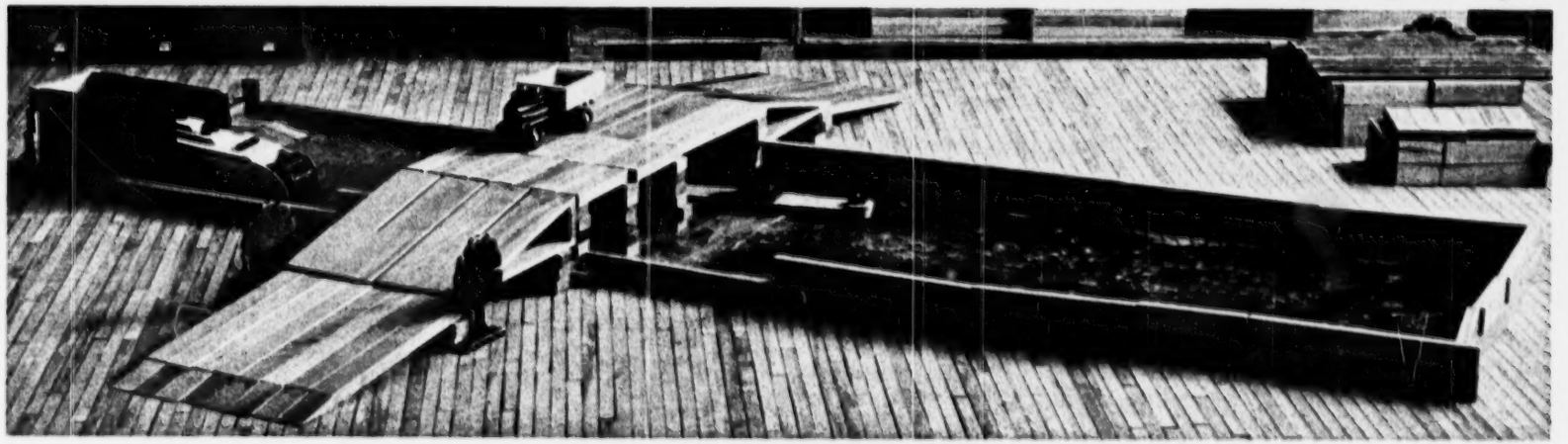
"It's an elevator," shouted Tom. "A water elevator!"

For days discussions and building activities related to the river, locks, and bridge continued to involve the entire group at times. Several children, who were not participating in the actual building, volunteered to "paint water" on long strips of brown wrapping paper to add realism to the project.

Growth of Responsibility

Coupled with this social development (leading to cooperative activity) is the growth of responsibility in and to the group.

Living in a group presents the need for learning to share and to take turns with both materials and ideas. It involves doing one's part towards keeping materials in order. It involves respecting the rights



and privileges of others and being careful that plans contribute to the well-being of all concerned. Opportunities for developing such responsibility within the group arise continually in practical, *real* situations. No matter how well stacked the shelves may be with blocks and with suitable toys to use in dramatic play, children will need or desire more of one type or another. Also, since they are not completely past the "hoarding" stage, some children will tend to accumulate more than their share of certain toys. Tangible problems relating to sharing toys and blocks and taking turns with them are ever-recurring, but can be satisfactorily solved by individual children or by the group, with skillful teacher guidance. The sharing of ideas, work plans, and actual work promotes true cooperative effort and can, with skillful guidance, be encouraged and developed in kindergarten.

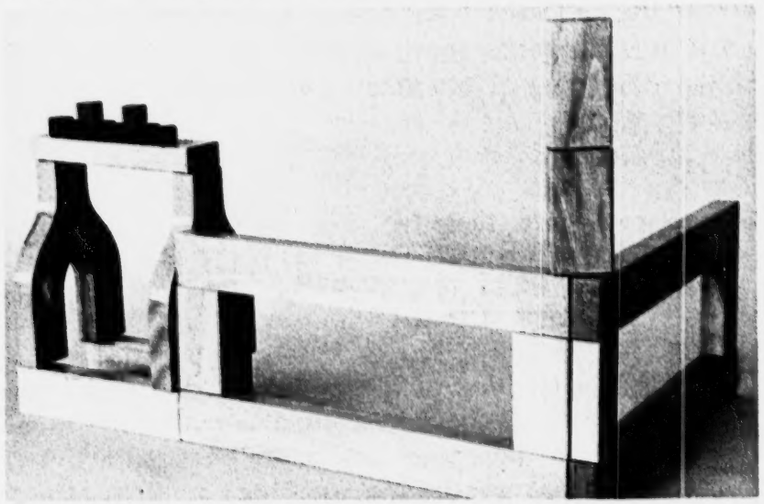
Blocks require careful, responsible users. They must be carried carefully so as not to hit other children. They must be handled carefully during construction so that the buildings are steady and firm. Children need to learn to watch where they are going and to consider the other person who has spent time and effort on his construction and would not appreciate having it knocked down, even accidentally.

Children can talk over such problems and be helped to formulate their own rules or guides for behavior. One group decided that a toy should be taken from the shelf only after a building had been constructed for it. This was agreed upon in order to prevent the accumulation of several trucks or cars by a child who was merely, in their words, "riding around and bothering the builders." Another group, faced with the problem of constructions being bumped by speeders, agreed that "anyone driving his car so fast he can't use good brakes should lose his 'license'." Such restrictions, devised by the children, have meaning and purpose and are far more effective than teacher directives. They are a practical application of everyday safety rules.

Effective Work Habits

Another phase of responsibility developed through the use of blocks is that of "putting away." Children learn to put away the blocks which are not needed or are unused at the end of the work period. They learn to help put away all the blocks whenever buildings must be taken down. Five year olds enjoy physical activity, and it is seldom an unpleasant chore to help others

take down their constructions and stack the blocks neatly on the shelves. Frequently the children make a game of it or devise ways of pushing their loads to the shelves. Here again, groups can develop efficient procedures, such as removing top blocks first "so there won't be crashes," putting toy animals and toy people away first, and carrying piles of five blocks to the shelves so the pile slides easily onto the proper shelf. As everyone helps, those children who do not use blocks frequently become familiar with the materials and more prepared to experiment for themselves.



Precise Construction

There are other excellent work habits that can be furthered by the use of blocks. For example, block buildings, in order to last through a work period—and certainly if they are to remain standing for more than a day—must be steady. The fact that blocks are usually in multiples (unit, double unit, quadruple unit, etc.) encourages neat, solid constructions. Children are pleased when their efforts result in an even, balanced product. Once a building is begun, children really want to finish it or keep adding parts to it. Thus, the idea of completing work that has been started takes root. Then, too, with convenient shelving available, children who are putting blocks away are encouraged to stack them in orderly fashion, all of a kind together. When the children themselves are the builders, they appreciate being able to locate the desired materials promptly!

Developing Accurate Observations

Blockbuilding encourages accurate observations. To make a recognizable structure, identifying details are important: the gasoline pumps and grease pit in a service station; the ticket office and waiting room in a bus station; the check-out counter in a grocery store;

the silo, barns, and chicken house on a farm. Representation of these details allows the teacher to gain insights into the powers of observation and the concepts which children have.

Carry-over of Interest

Block projects also encourage and stimulate the carry-over of interest from one day to the next. It is really important to leave constructions undisturbed overnight! This point cannot be emphasized enough, for in this way the child can return the following day to develop the ideas he has had in the interim and improve the construction already made. The less mature child probably loses interest even in one work period, but as a child gains maturity and experience, blockbuilding is an excellent means of encouraging and developing a longer attention span and a carry-over of interest from one day to the next and, later, even from one week to the next. Many times interest in a project leads to individual research—looking up pictures at home or getting parents to drive past a farm or gas station in order to ascertain some detail of which the child is uncertain.

Cementing Home-School Relationships

Another value of block projects is the enhancement of the home-school relationship. Tom tells his father about the bridge which he and two of his friends have built and they discuss bridges at home. Possibly his father drives him to a bridge so that they can look at one together. The next day Tom adds new details to his construction. Later in the week his father comes to the schoolroom to see the finished bridge. This may be his father's first glimpse of the inside of the school, but it won't be his last, and his appreciation of his son's activities and interests will benefit the whole family.

Learning Arithmetic Through Blocks

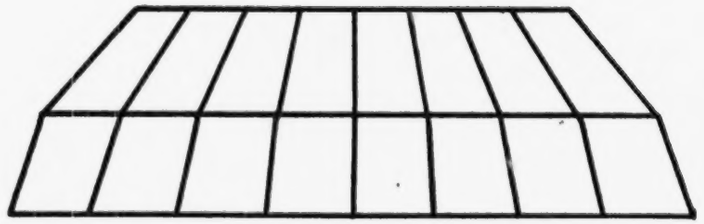
Blocks can be most helpful in the informal development of arithmetic concepts. "More than," "longer than," "higher than," "smaller than," are terms in frequent use by children during their blockbuilding activities. Such terms have clear, vivid, concrete meanings for them. Coupled with such comparisons of size and quantity are the concepts promoted by the blocks themselves, which are designed in multiples—unit, half-unit, double unit, etc.

Dick, building a train station, found only double units on the shelves. These would not reach across the walls to form the roof. Taking two double units to Stan, he said, "Say, I'll give you these two blocks if you'll give me one of your long ones. See, you can use these two in your wall and they'll just fit where this long one is." The trade was made and, furthermore, Stan offered the rest of his quadruple units, one for each two double units which Dick brought him. The roof was made—arithmetic functioned.

Johnny arranged eight ramps in a row. Then he laid three quadruple units opposite three of the ramps for a parking lot. He counted the remaining ramps, "1, 2, 3, 4, 5," got five more quadruples to match, and laid them in place saying, "That must be eight blocks wide, I guess. That should be wide enough." This was arithmetic in practical use, indeed!

Mike, driving a large truck to his garage, found that the top of the truck bumped the roof. He removed one double unit from the roof, then a second, then a third, driving the truck up the ramp very carefully as he did so. Finally, all but the last two blocks of the roof had been removed and the truck was fully up the ramp and in the building. Sitting back on his heels, Mike said proudly, "I'm dumb! The roof's not high enough. But I'm smart 'cause I know how to fix it." He raised the sides a block higher and put on a new roof. It worked beautifully!

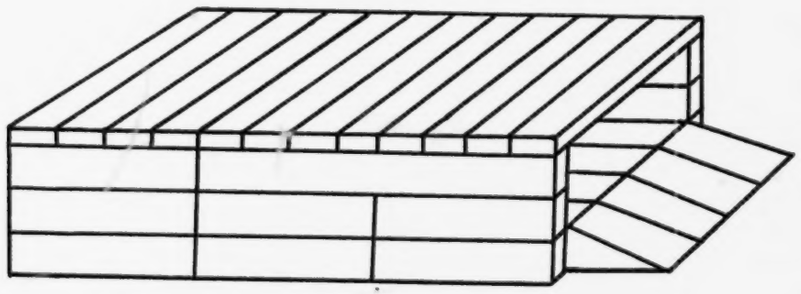
Such arithmetic concepts are both practical and basic. Similar experiences occur with concepts such as "half as big," "twice as long," "twice as many," and "half as high." Another type of arithmetic experience frequently takes place while putting blocks away. When stacks of three, four, five, or six blocks are made by the children, preparatory to piling them on the shelves, one calls, "I'm making piles of five—I'm mak-



Ramps

ing piles of five." Another child calls, "Six fit here. Bring me some piles of six blocks to put here on my shelf."

There are limitless possibilities to this field, and since the manipulation is his own, the builder creates his own individual arithmetic instruction. An alert teacher will capitalize upon each new need for some quantitative concept.



Truck Garage

Learning Geography Through Blocks

Frequently blockbuilding activities will introduce children to geographical relationships and facilitate orientation in their immediate community. As stores, houses, railroad stations, farms, rivers, and factories appear, some children will begin to question the location of the farm "right in the middle of a busy city." An airport, some will conclude, has to be far enough away from Main Street to allow for landings and take-offs. As these relationships develop, simple "maps" may evolve, with proper directional plans if not with accurate proportions. The route taken on the group excursion to the fire station, the streets around school which different children use in going to their homes, daddy's office, the post office, the shoe store, the dentist's office, and other important landmarks can be placed in relatively correct locations. By late spring it takes only a few such key buildings to spur many children to construct others. Frequently a whole city plan, including two or three of the main streets, is developed, with cartons serving as buildings when the block supply needs to be supplemented.

One group of five year olds discussed what they saw on the way to the swimming pool from school. As a start, two

children laid blocks on the floor to mark the route along Union Street. "That's the campus on the left," said Jane. "I'll build the building where my daddy teaches." Mark's daddy ran a photography studio on the corner where Court Street crossed Union, so he laid out Court Street and his daddy's shop. Becky's daddy was a dentist, with an office on the opposite corner, so his building was placed. Ted's daddy was a mailman, and just beyond the dentist's office was the post office. This was built by Ted and his pal, Larry. Kitty had recently been to the train station to meet her grandmother, so she knew the street crossed the tracks near the station. She corralled Eddie and Sally to help her.

In no time at all, the entire group had started something to add to "the city." Discussions developed as to correct locations and, if these were not resolved easily, the group decided to "walk up and see who's right." Streets, curbs and sidewalks, traffic lights, bank, fire department, church, and stores appeared during the next few days. Such "geography" is an excellent practical foundation for building space relationships and furnishing orientation.

Gaining and Clarifying Concepts

In kindergarten, two major goals are that of helping children to acquire accurate, firsthand information and to gain clear concepts of the world around them. Blocks are exceedingly valuable equipment in this respect. The teacher's first role here is that of listener and observer, for in this way she can discover the interests of the children and the facts known by them. Then she builds on the interests and knowledge. When misconceptions appear in dramatic play (such as a hydrant carried around on a fire truck, cows kept on the second floor of a house, or airplanes landing in the middle of Main Street), she can take her cue for the needed clarification. Possibly she will guide a group discussion in which children volunteer information and ask questions. This exchange can be used as a basis for determining what further clarification is needed or as an activity in which children correct facts and explain them to each other. She may use a story or an informational picture which supplements, clarifies, and corrects concepts. Very likely the experiences may lead to a trip for the group in order to learn the correct information firsthand. Sometimes the experience is worth the attention of the entire group; sometimes it is valuable only for those directly involved.

Gary was bringing his boat to the shore of the "lake." "I need a parking meter for my boat," he stated. "Where's a meter? Where'll I park it?"

"Silly," George said, "you don't *park* boats. You anchor them."

Steve added, "Or tie them up at the wharf. I'll get you a string."

"Well, what's a wharf, anyway?" Gary wanted to know. "Where is it? Hey, get that truck away from here. This is water!"

Tom said, "Well, how did I know? There's no way to tell water from road in this place."

Steve returned with the string and promptly started to build a dock, explaining its function as he did so.

Since the boys were settling the matter so competently among themselves, the teacher remained in the background, merely commenting on the expertly constructed dock when it was completed, "I guess you know about docks and boats from your visit at the lake last summer, don't you, Steve?"

Four boys were busy making a sturdy "fire station." When it was done, the teacher noted that Jack went off into a corner, pantomimed building a bonfire, raced to the fire station, and rang in the alarm. Then all four boys dashed out with toy trucks to the fire. This procedure was repeated several times.

In discussion later, the teacher inquired about the duties of the "firemen" that morning. Jack proudly said, "I built the fires and then we all put them out." The teacher was perplexed at this interpretation of a fireman's duties. She asked if any of the children knew firemen who built fires. Hands went up.

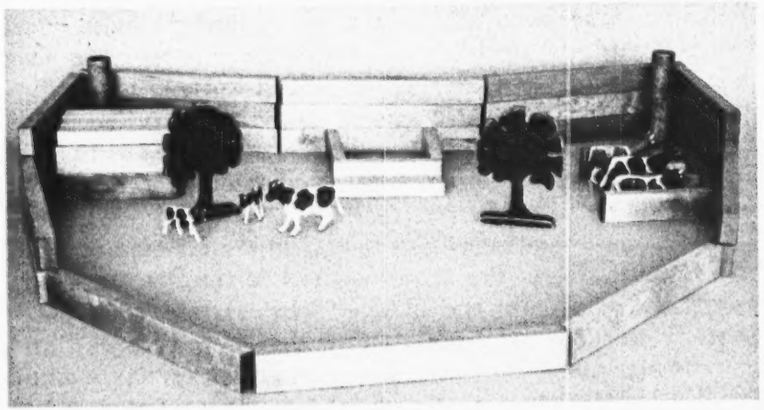
Kathy (who lived adjacent to the railroad) said, "Yes. Every night, just after I get into bed, the express train goes past and I can see the fireman stoking the engine fire."

Donald had lived in New York "in a big apartment building" the previous winter. "And there was a man there to build the fires to keep us warm and make the water hot for us," he declared.

Obviously it was necessary to clarify the concept of what city firemen do, so the group walked to the fire station to ask directly. Again, the teacher had learned what clarification was needed by watching the dramatic play and listening both to the play and discussion of the events. She proceeded, through firsthand experience for the children, to help them gain clarification *at the source*.

Mary, Linda, and John built a farm. It was entirely enclosed by a fence three blocks high. At the right were open stalls for the cows. Linda explained, "Where they milk the cows." In the center rear was a small platform with a "drinking fountain" for the cows. Most of the space was open, with just a few trees to cast shade on the grazing pasture. In the rear, lined up against the fence, was a row of cylinders.

Tim was driving a truck with a cow on it. Soon John was overheard calling to Tim, "Here, you'd better come help us. Will you milk this cow for me? Here's how you do it." He put a large cylinder under a cow, pretended to milk, and then added the cylinder to the row by the fence.



"See, these are cans of milk. Before long we'll feed them to the cows so that they will be able to give us more milk."

Mary had spent time on her uncle's farm and knew this wasn't quite right. She volunteered the information that the cans of milk had to be kept cold. "I'll build a refrigerator house," she said. She built it in the left rear corner. She knew, too, that the milk was not for the cows to drink!

Several other children offered suggestions which recalled previous farm experiences that they had had—the cow barn, stanchions for the cows, the spotlessly clean dairy barns and milking equipment, shipping milk to the dairy for pasteurizing and bottling, and other bits of information which the teacher encouraged them to retell to the entire group. Questions were raised, more information sought, pictures were brought from home, and other farms showing evidence of the new information sprang up in the block area.

A story called "The Milk's Journey"[1] was read. It traced the route of milk from the cow to a little boy's breakfast table.

Learning Science Through Blocks

Science, too, functions daily in blockbuilding. The basic shapes of the blocks are evidence of "rest" and

[1] Mitchell, Lucy S. "The Milk's Journey." *The Here and Now Story Book.* Revised edition. New York: E. P. Dutton and Co., 1948. p. 85-87.

"motion"—the flat surfaces remain still while the rounded cylinders roll. Ramps—or inclined planes—are simple machines, too. They facilitate movement from one level to another and are quickly recognized as having such a function. When string is added to the available equipment, more complicated "machinery" appears (as with an elevator, used to raise or lower materials and made either by wrapping one end of the string around a cylinder or by actually employing a pulley). And gravity becomes a real concept, for blocks do fall down.

Developing Physical Skills

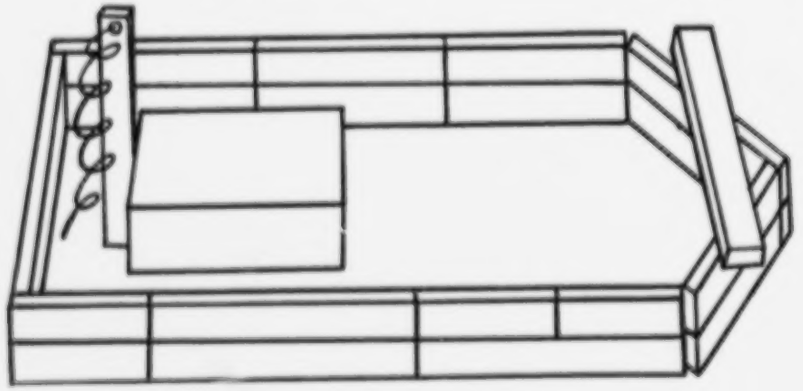
In all the aforementioned values inherent in a block-building program for young children, the development of physical coordination skills was implied but not mentioned specifically. It would be a serious omission to overlook the role of blocks in aiding the development and refinement of these physical skills.

Eye-hand coordination is constantly put into practice in building, and well-matched corners and elaborate structures and designs are evidence of really mature control. The mere manipulation of blocks, of managing to carry three or more without dropping them, is a physical skill for some. And when it comes to working in close proximity to other children or walking around several constructions on the way from the supply shelves to one's project, good physical coordination is indeed a requirement if the trip is to be accomplished without an accident.

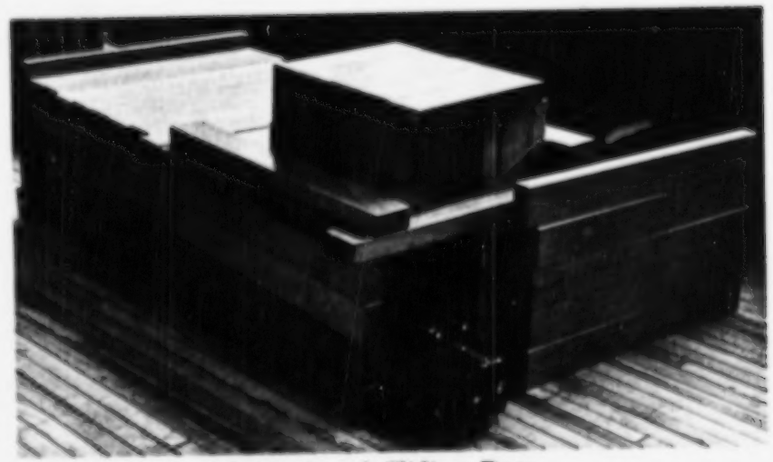
Large, hollow blocks are often used with younger children or for out-of-door activities. One of the prime advantages they offer is the development of the muscles. While tugging, lifting, carrying, reaching, and loading these blocks on wagons, the child uses his back, shoulder, and arm muscles in a way rarely employed with climbing equipment.

Creating With Blocks

Blocks have been mentioned several times as being adaptable materials. That is true, but they are more than that. They are creatively challenging materials as well. Given a supply of blocks and space to build, children will construct an endless variety of patterns, ranging from the simplest outline form to elaborate, complex structures. Balanced, decorative patterns emerge, complicated ornamentation is used, experimentation in style, design, and arrangement occurs—all true expressions of individual creative interests.



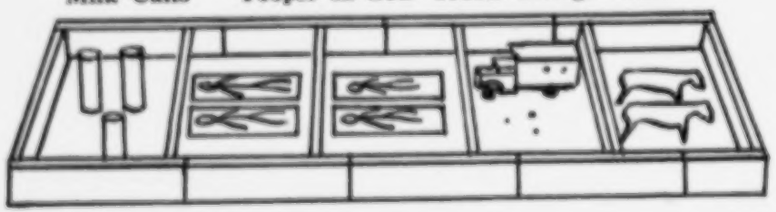
Fishing Boat



Fire Station—with Roof and Sliding Door

Farm

Milk Cans People in Bed Truck Garage Barn



In *The Art of Blockbuilding,* Harriet Johnson[2] pointed out the balanced structures and decorative patterns created out of blocks by nursery-school children. She emphasized the fact that "blockbuilding is an expressive art." The author noted that there is a sequence of styles of building and that a child of five who has not used blocks previously seems to follow the same order of development that younger children do, although he passes through the various phases at a more rapid rate.

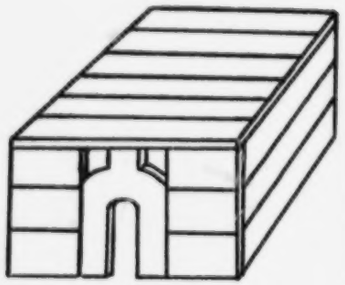
The outline form is one of the simplest structures. Here, if rooms are separated at all, there is no clear-cut organization or planning evidenced. As the child gains clearer concepts of what he is building, as he grows in experience, confidence, and maturity, the rooms become more detailed, often with blocks representing beds, davenport, tables, and lamps. The construction becomes more spacious, less confined, and less cramped.

When the walls of the building become more than one block high, another stage has been reached and, eventually, a roof and perhaps a doorway appear. Windows usually appear much later.

[2] Johnson, Harriet. *The Art of Blockbuilding.* New York: 69 Bank Street Publications. Reprint 1945. 43 p.

Along with the simple rectangular shape, other basic forms begin to appear—perhaps an L on the house or a superstructure set back. Occasionally slanted roofs supplant flat ones. A Y-switch becomes a door. Perhaps a hexagonal floor plan is devised.

On the roof of a flat building an elaborate tower appears—pure experimentation in combining block shapes. Solid-colored cubes add much to decorative trim as well as serving, at times, purely utilitarian purposes such as "red lights" or "green lights" for train or traffic signals.



"Switch" Doorway

Hexagonal Floor Plan

Design elements become more and more intricate and complicated as ramps, arches, cylinders, pillars, triangles, and other forms are combined. The results are very real evidence of creative art expression!

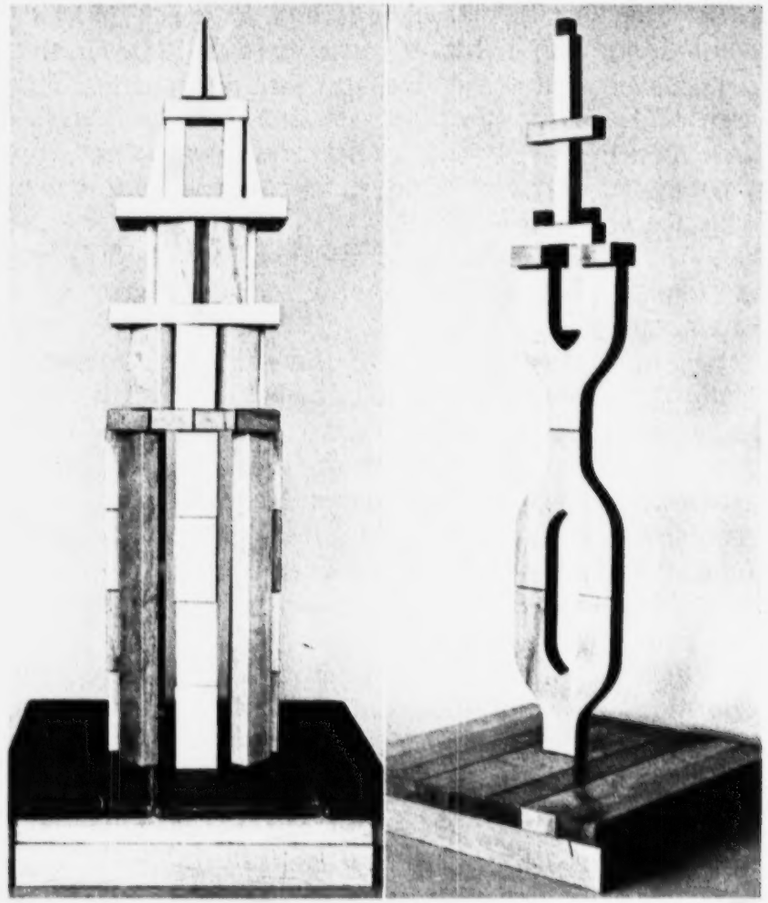
(1) Sometimes buildings have no functional purpose, but are merely intricately designed "towers" or "skyscrapers"—such as Helen and Steve's tower.

(2) Here is the result of Janet's unusual experiment in balance, created solely to achieve a pleasing design.

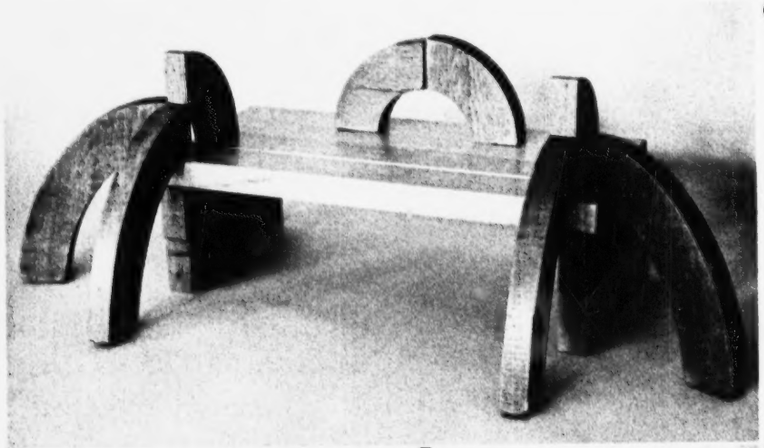
(3) Note Sam's effective variation with curves.

(4) A structure composed of row upon row of plain blocks, pillars, curves, ramps, arches, and cubes. Teddy worked on it for two days, with occasional help from Susie and Leo and much admiration from the other group members.

Originality is evidenced not only in the form of construction and in the variety and uses of block shapes, but also in the language expression which the activity of building promotes. As children work together, compare ideas, and engage in dramatic play, language facility is encouraged. Sometimes spontaneous songs or poems are overheard by the listening teacher. This occurred when Tony resented the fact that John "was running his road into my house." The teacher suggested that they talk it over, whereupon Tony turned away singing:

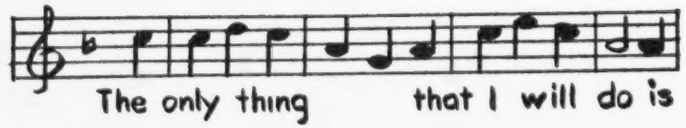


(1) (2)



(3)

Tony's Song



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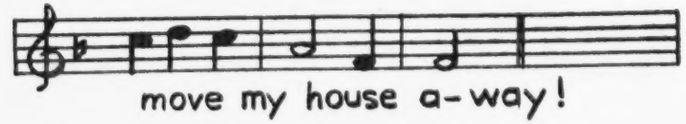
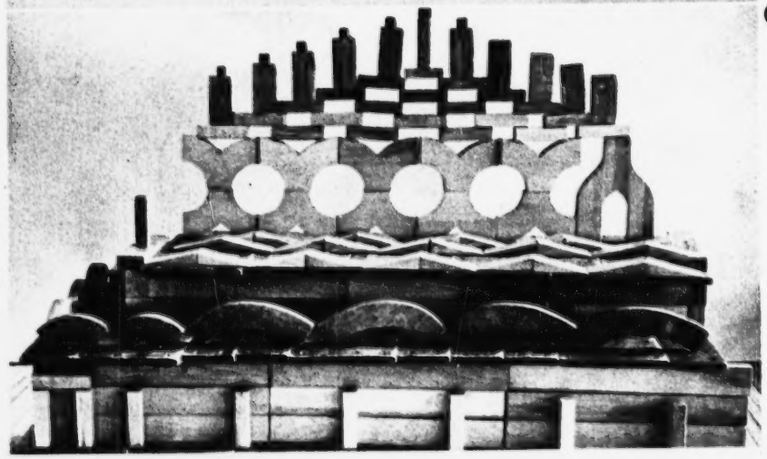




Dramatic play, too, is creative expression which arises out of blockbuilding. Although usually based on the familiar, the imitation of mothers, daddies, farmers, truck drivers, airplane pilots, etc. becomes a personal reliving and re-creating of their duties and actions, usually embroidered with very individual interpretations!

The Teacher's Role

Throughout all of the experiences with blocks, the teacher plays a key role. She must set the stage by providing the raw materials (blocks and suitable toys), adequate floor space, time for building, and her own sympathetic, alert interest. If she is bored with block-building possibilities or is overly directive or permissive, the program fails at the start!

The teacher can foresee problems arising, for instance, from building too close to the shelves. Before a child gets started in that direction, she can suggest a better location. Later in the year she may deem it unwise to be this protective, but by then children who have come to enjoy blockbuilding and are adjusted within the group can "take" a sad lesson when their construction is bumped accidentally by those attempting to get blocks from the nearby shelves.

The teacher must watch, too, for those who cannot join others constructively and may race around or run their toy cars without any purpose other than to distract the workers. A question such as, "Oh, do you need gas?" or a comment such as, "Jack has a gas station; he'll sell you some," may help to direct the wanderer to some more purposeful action. The teacher may

Small, Confused House

say to Bill, "Steve needs a man to help him bring 'lumber'. Don't you think you'd be a fine help with that truck?"

There are many times when children who have not yet learned how to maintain their rights within a group may come to her with tales of woe, such as, "He took my blocks" or "Jane won't let me play with her." Such cases require thoughtful handling—possibly a suggestion of where to find more blocks, some moral support to help present the case to the offender, or a conference of all parties concerned to clear the air.

Above all, the teacher must be a *watcher* and a *listener*. Through the dramatic play and even the actual constructing activities she can learn much about the children—their needs, their abilities, their interests, their concepts—and this means that she can devise more skillful ways of helping each one to grow. Many factors relating to the child's emotional development become apparent in his use of blocks. The teacher may note that a seemingly insecure child tends to build a tiny, compressed structure. The less mature child tends to do much experimentation, resulting in frequent crashes of blocks and an end product which is confused and has little recognizable form. Or, it is possible that a child may be more sure of his ability with blocks than of his ability to get along with other children, so his products may be quite extensive, detailed, and well constructed. The teacher must be aware, too, that the child who plays alone is not always immature; he may be shy or simply prefer to go his own way with his own ideas. Through these observations she gets to know the child's emotional patterns. She may also derive a clear picture of what needs to be discussed, what information or habits developed, and what trips will be useful to clarify concepts and extend background understandings.

The teacher should have, at hand, clear pictures of an extensive variety of subjects which can be used by the children as "reference materials," or posted on a bulletin board used for informational facts to spur the continuance of some project. Books with factual material (contained in so many excellent modern, realistic stories for this age) should be provided in abundance, as well as time during the day for perusing them and reading them aloud.

It is the teacher's responsibility, too, to help the children develop standards (safe constructions, a reasonable degree of accuracy), assume greater responsibility, and grow in cooperative planning and living. Sometimes this will involve having materials at hand which can be produced in order to promote a worth-

while activity (long strips of paper which can be painted to represent a river or string to serve as hose on gasoline tanks). Sometimes it will mean some research on her part, as, for example, locating an elevator where children can *see* the machinery (not so easy in the modern world of electricity) and grasp a simple concept of how one works. Sometimes it will mean asking skillful questions to lead the children's thinking from step to step. "How does your road get onto the bridge? Oh, you do have some ramps to help, but it looks like quite a bump there." Or, "Is the bridge high enough for boats to go under it?" Then she may offer to assist in holding the bridge steady while the end is raised a bit. And, by all means, she must give appreciative recognition of good efforts and work well done. "That's fine! Now the boats can go through. You did that well!"

Kinds of Blocks

What kinds of blocks? Many types are on the market. They range extensively in size and variety of shapes, in materials from which they are made, and in quality of construction. Some are made with cleated ends, some with hand grips, some designed to be held firmly with rods or bolts. Some are made of heavy cardboard or composition materials, some of wood.

Natural wood, carefully smoothed, is a thing of beauty in itself, and children often admire the grain of their wooden blocks. The *natural color* (preserved by lacquer) provides simplicity which can be heightened or accented by a few solid-colored cubes for decorative trim. Since blocks are to be put together in many types of constructions, letters or pictures on them serve only to distract from the desired effect.

For maximum value, smooth wooden blocks, made in the simpler styles and based on a unit size with its multiples, serve excellently. It is this type that is generally referred to in this bulletin. These may be the large, hollow type which children use particularly well out of doors where there is space to construct buildings large enough for them to enter. Supplemented by sturdy wooden packing boxes and planks, these hollow blocks provide rich possibilities for various constructions and dramatic play.

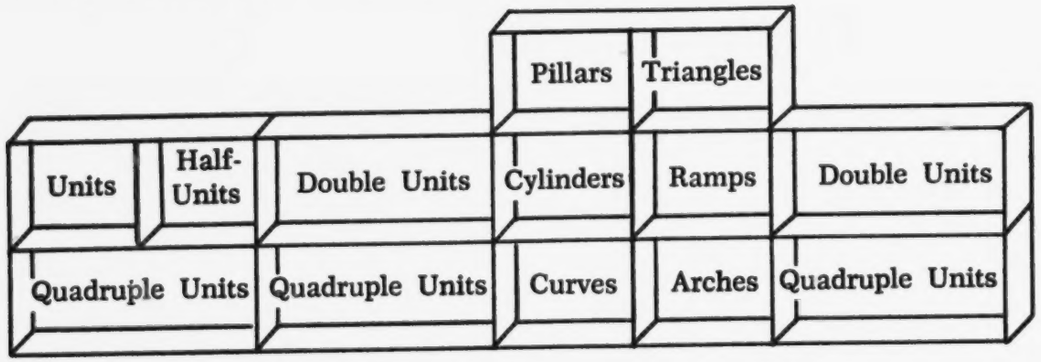
The smaller, wooden, indoor blocks, too, should be based on a unit, with a variety of sizes in multiples of this unit. While these do not permit constructions large enough or steady enough for children to enter themselves, they can accommodate suitable wooden toys—toy animals and dolls, etc.—for extensive dramatic play.

In either case, a sufficient quantity of blocks is needed in order to provide free, extensive use by the entire group. Maximum durability and safety are also prime requisites.

Storing Blocks

Convenient and adequate storage facilities are needed. The large hollow blocks (if used out of doors) should be stored on low shelves or in a section of the shelter floor (apart from wheel toys) where they are easily available to the children, yet protected from the weather. For the indoor blocks, the most suitable storage seems to be open shelving which permits neatly stacked piles, six to eight blocks high, and with enough partitions to allow separate sections for each type of block.

Such shelves may be made in several sections which can be arranged as desired around the building area. The dimensions can be planned by estimating the quantity of blocks to be stored. It is suggested that the depth of the shelves accommodate the length of the double unit so that they can be slipped in end first. Thus, for the sizes of blocks described later, the shelves should be about 12 inches deep. This depth will provide for all except the quadruple units which can be stacked lengthwise on shelves approximately 26 inches wide. Shelving such as this makes it easy for children to be neat, to learn good habits, and to realize the meaning of "a place for every thing and every thing in its place."



Caring for Blocks

For practical value, wooden blocks stand the tests of time and hard use, although the initial cost is high. By adding a quantity each year, however, a good supply can be built up over a period of a few years. In order to preserve them, these should be painted if they are to be used out of doors or lacquered if they are to be used indoors. The investment is worth the effort! By lacquering new wooden blocks before use (a process in which some children could participate), the life of the blocks is extended considerably, especially if the teacher watches carefully for those that show signs of wear. Worn blocks can be lightly sandpapered and relacquered to last several more years.

Shape, Size, and Number

As for the variety of shapes needed, the most popular ones are the larger, plain types (double and quadruple units) with a few ramps, triangles, cylinders, pillars, and arches to provide for variety and experimentation.

Here is a list of the types of blocks referred to in this bulletin, with an estimate of the supply needed for one group of twenty-five five year olds. Blocks can be used from 10 to 20 years when they have been sanded and lacquered carefully!

Indoor Blocks

Number		*Approximate size*
100	units	1⅜" x 2¾" x 5½"
180	double units	1⅜" x 2¾" x 11"
200	quadruple units	1⅜" x 2¾" x 22"
36	ramps	1⅜" x 2¾" x 5½"
25	roof boards	⅜" x 2¾" x 11"
10	curves (eliptical)	1⅜" x 2¾" x 13¾"
10	curves (circular)	1⅜" x 2¾" x 7¾"
10	Y-Switches	1⅜" x 8¼" x 11"
20	cylinders	2¾" diam. x 5½"
20	pillars	1⅜" x 1⅜" x 5½"
25	half-units	1⅜" x 2¾" x 2¾"
20	pairs triangles	1⅜" x 2¾" x 2¾"

Out-of-door Hollow Blocks

(to be supplemented with planks, boxes, etc.)

36	units	12" x 12" x 6"
36	double units	12" x 24" x 6"

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